U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT
MIDDLE SIUSLAW - ESMOND CREEK AQUATIC HABITAT RESTORATION PLAN

ENVIRONMENTAL ASSESSMENT No. OR090-EA-00-14

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PURPOSE AND NEED

Esmond Creek is a sixth order tributary of the Siuslaw River with origins located in the Central Coast Range, Western Lane County, Oregon. The Siuslaw River is a major tributary of the Pacific Ocean on the Central Oregon coast. History shows that the Siuslaw River and it's tributaries supported large runs of salmon, trout and other fish species. Harvesting of timber resources and related habitat alteration and harvest of fish have led to fish runs that number a fraction of their original size. The purpose of this restoration plan is to improve the quality and quantity of appropriate habitat in the Esmond Creek drainage, and the Siuslaw River and tributaries from the confluences of Whittaker Creek to Esmond Creek to benefit all fish species and other aquatic organisms. The site specific analysis of future restoration proposals described herein will be tiered to this document. The proposed plan is in conformance with the Final Supplemental Environmental Impact Statement for the Northern Spotted Owl (Northwest Forest Plan), the Final Eugene District Resource Management Plan/EIS and Record of Decision, and the Aquatic Conservation Strategy in the Northwest Forest Plan. Information summarized in this plan is from the Eugene District Esmo-Whitt Subwatershed Analysis (an addendum to the Siuslaw Watershed Analysis, June 1998). Information and analysis is also tiered to the Eugene District Upper Siuslaw River Aquatic Habitat Restoration Plan OR090-EA-98-17.

OBJECTIVES

1. Increase the availability of spawning, rearing and refuge habitat for all aquatic species.

2. Improve the quality of available pools and increase pool quantity in reaches with a low pool to riffle ratio.

3. Increase stream structure and complexity to benefit aquatic species.

4. Respond to temperature and water quality issues by focusing on structure that will increase ground water retention during the low-flow summer months and high flow periods.

5. Remove migration barriers to all aquatic species. When necessary replace problem barriers culverts or bridges with new ones that address animal migration and stream hydraulics.

6. Improve the connectivity of the stream and floodplain.

7. Improve juvenile salmonid rearing and refuge habitat.

8. Design and implement projects that collect woody debris and organic litter.

9. Increase the percentage of conifers in riparian areas to create future recruitable large wood. Maintain riparian conversion areas on regular intervals to assure optimum growth and health of new conifer and conifer/mixed stands.

10. Reduce stream velocities in bedrock dominated reaches by placing an adequate number and size of instream structures.

11. Strengthen the developing partnership between the BLM and cooperators in their endeavor to restore degraded aquatic systems.

BACKGROUND

In 1996, the Siuslaw Watershed Analysis (SWA) was completed under interim guidelines established by the Watershed Analysis Coordination Team of the Regional Ecosystem Office (REO). Since completion of the SWA, 5th field watershed boundaries were redrawn to include the Esmond and Whittaker subwatersheds. A supplemental watershed analysis was completed in 1998 for Esmo-Whitt as a addendum to the SWA. This supplement made it possible to combine and update analysis data for the Siuslaw and Esmo-Whitt watersheds.

The Aquatic Habitat Restoration plan for the Upper Siuslaw River Basin (Environmental Assessment No. OR090-EA-98-17), completed in 1998, was based on the SWA. This plan amendment, which ties restoration efforts from the Whittaker drainage to the Esmond Drainage (including the Siuslaw River), is tiered to both the Siuslaw and Esmo-Whitt Watershed Analyses and the Upper Siuslaw River Aquatic Habitat Plan (USRAHP). Tiering is based upon similar stream dynamics, geomorphology, aquatic species and habitat needs as referenced in the USRAHP.

DESCRIPTION OF EXISTING ENVIRONMENT

Esmond Creek Basin

As documented in the Esmo-Whitt Watershed Analysis (EWWA), Esmond Creek is a 6th order tributary of the Siuslaw River with origins that occur in T.19 S., R. 8 W., Sections 35 and 36. In addition to Esmond Creek the basin contains a number of large, named and many smaller un-named tributaries. Leopold, Kline, and Cabin Creeks are the largest tributaries to Esmond Creek. Each of these tributaries has numerous forks and tributaries.

Runs of chinook salmon (*Oncorhynchus tshawytscha),* coho salmon (*Oncorhynchus kisutch),* steelhead trout (*Oncorhynchus mykiss*), sea run cutthroat trout (*Oncorhynchus clarki)* and Pacific

lamprey (*Lampetra tridentatus*) are known to spawn in the Esmond Creek drainage. In addition, resident cutthroat, western brook lamprey (*Lampetra richardsoni*), sculpin (*Cottus sp.*), dace (*Rhinichthys sp.*), redside shiners (*Richardsonius balteatus*) have been observed in the drainage. BLM has conducted spawning counts since 1984, otherwise, little is known of the fish communities, migratory patterns or populations of non-anadromous species. Nor is information available on resident cutthroat migratorial behavior. Based on observations in Wolf Creek, a tributary that drains into the Siuslaw River a few miles below the confluence of Esmond, pikeminnow (*Ptychocheilus oregonensis*) and large scale sucker (*Catastomus macrocheilus*) appear to make upstream spawning migrations in the Spring months. The hypothesis can be made that the pikeminnow and suckers also migrate into the lower Esmond drainage during the Spring from the mainstem Siuslaw. This has not been proven to date. On August 5, 1969 the Oregon State Game Commission used rotenone to sample fish species in the Siuslaw River near the confluence of Esmond Creek and documented suckers and pike minnow (Oregon State Game Commission, 1969).

BLM spawning counts and juvenile sampling show a general decline in anadromous fish species since 1984, a pattern similar to rivers and streams of the Oregon Coast. These declines are consistent with the coast-wide declines in salmonid runs, particularly coho. For the Siuslaw River, runs of coho have declined from >250,000 to <10,000. As a result of declines of coho, they have been listed as threatened by the National Marine Fisheries Service.

Eastward-faulting marine sedimentary silt and sandstone is the predominant geomorphic type in the drainage. Recruitable stream deposition is comprised mostly of sand and silt with low levels of basaltic rock. Overlying soils are shallow and subject to erosion through lateral rotation slides and channel failures. Channel conditions are dominated by underlying silt and sandstone and by response to the rapid uplift of the Coast Range mountains.

The Esmond basin contains one of the few natural lakes in the Coast Range. Esmond Lake, created by a rotational slide in the upper reaches of the basin, is one of the few natural lakes in the Coast Range mountains. This shallow lake is not a migration barrier to most anadromous salmonids. Recent spawning surveys above the lake document spawning coho.

Because of the rapid uplift, shallow soils and steep slopes, the basin has an inherent instability (Esmo-Whitt S.A., 1996). Rotational slides are a fairly common occurrence in the Esmond Creek drainage and have been documented as recently as 1999. On private land in T.19S-R.8W-Sec. 26, end-haul materials were dumped on top of an existing rotational slide and caused new movement, fissures, destabilized slopes and periodic surges of silt into reaches of Esmond Creek. New slumping has occurred at this site as observed by fishery biologists in February of 2000. However, silt from this event had not reached Esmond Creek in 2000, although large quantities of sediment entered the creek the first three years of this rotational slide. These materials were gradually transported through the system during subsequent high flows.

In the 1980's and 90's, a series of smaller channel sluice-outs and slides in Esmond and Leopold Creeks has occurred. Many other smaller slumps and erosion areas are found throughout the basin. In 1996, a large slide originating in the south west quarter of T.19S-R.8W.-Sec. 26 (below a ridge line/head wall road) carried large volumes of debris down into Esmond Creek. This slide eradicated two road crossings, dammed Esmond Creek and sent water downstream with enough force to sluice the channel for approximately 1.5 miles.

As denoted previously and in the EWWA, the basin has experienced a number of channel failures over the last two decades. These failures have led to sluicing of steeper stream channels and accumulations of sediment, rock and woody debris in the lower gradient reaches. These events caused localized accumulations of materials and surges of silt downstream.

Prior to the 1940's, logging and lumbering practices had not had a major impact on the Esmond Creek basin (Esmo-Whitt S.A., 1996). Like other coastal streams, Esmond Creek was presumed to be dominated by large woody debris and beaver dams. These features would have created pool complexes, braided channels and accumulations of sediment and gravel. Due to logging practices from the 1940's and into the 1990's most of the stabilizing structure was removed from the channel and recruitable conifer was taken from riparian areas.

Road systems built to log the drainage parallel much of Esmond Creek and some of it's tributaries. Many of these roads contribute to hydrological change and sediment loading. Aquatic animal migration routes on basin tributaries have been altered by culvert placements. Many culverts in the basin are partial or complete barriers to most species of anadromous and resident fish, and other aquatic species.

Habitat for fish and other aquatic organisms has been substantially reduced in response to past management activities. With a loss of woody structure and recruitable riparian conifers most of the streams in the basin have lost the ability to dissipate energy (increased erosional flows), aggrade (collect spawning gravels) and create stable habitat (cover for aquatic organisms). Stream channels have become confined and downcut up to 10 feet in many locations. As noted in the EWWA, the largest accumulations of sediment occurs in the broader, flatter reaches, and where there is some structure due to woody material and beaver activity. As a result, fish habitat is spotty along the stream, with some good habitat reaches interspersed among poor or suboptimal habitat.

In the early 1970's BLM initiated stream restoration with the placement of a series of gabions in the northwest quarter of T.19S-R.8W-Sec. 2. By the end of the decade these structures had failed. In 1985 BLM conducted stream enhancement efforts in North Fork Leopold Creek. Structures here were built with on-site boulders and logs. Cutthroat trout populations rapidly increased in the project area during the two years after installation, but dropped off when the structures broke up. In 1987 a boulder weir series was installed in T.19S-R.8W-Sec. 21 below the BLM stockpile (09-60). Insufficient data was collected to determine the fish response to these structures. To date, the boulder weir series is still intact and trapping mostly sand substrates. In 1998 a large conifer fell across the top

of one of the weirs in this series and effectively increased the structural height. The increase in height allowed for energy dissipation and aggration of the channel for hundreds of feet upstream of this location. In addition, woody debris has collected in a jam fashion here and likely provides a much needed cover component.

During the late 1980's additional work was planned for Esmond and Leopold Creeks but was postponed due to channel failures, slope stability issues and a general increase of silt into these systems as a result of a series of headwall and slope failures upstream. Private landowners attempts to control siltation associated with the large lateral slump were only partially effective and were not maintained. In 1995 the BLM initiated a riparian conversion project in an attempt to increase recruitable conifers along Esmond Creek in T.19S-R.8W-Sec. 21 and 33. In 1999 the Oregon Department of Fish and Wildlife (ODFW) and Roseburg Resources Company (RRC) removed a partial barrier culvert in Cabin Creek near the confluence with Esmond Creek (T.19S-R.8W-Sec. 21, SW quarter) and closed road 19-8-20 in the process.

The potential for fish production in the Esmond Creek basin is high. The lower two to three miles of Esmond Creek are ideal for chinook salmon spawning based on stream size, low gradient and the potential for accumulating suitable spawning gravels. Above this and in many of the Esmond Creek tributaries stream gradient increases and related stream processes are potentially very suitable for coho and steelhead rearing and spawning. Additional habitat is available through culvert replacement.

Proposed actions include placements of in channel structures, increases in diversity of habitat, replacement or removal of barrier culverts, removal or rehabilitation of roads and increases in riparian conifers. Some of the work would be completed as a "cooperative effort" with the ODFW, RRC and/or the Siuslaw Watershed Council. Work will be completed in sequence over multiple years based on planning, funding and personnel available to complete plans. Emphasis for project work will be placed on mainstem Esmond, Leopold Creek and the Siuslaw River at the confluence of Esmond. Stream enhancement work may also be completed in tributaries like Kline and Cabin Creeks and smaller non-named streams.

Mainstem Siuslaw - Whittaker to Esmond Confluence

The Mainstem Siuslaw River reach in the watershed starts from just below the confluence of Whittaker Creek (a tributary of the Siuslaw River) up to the beginning of the Middle Siuslaw reach (just above the confluence of Esmond Creek as described in the USRAHP). This reach is characterized by a mostly confined canyon bottom. Low stream channel gradients are evident throughout most of the reach. Limiting factors included a lack of habitat complexity, off-channel and over wintering habitats, deep pools, and spawning gravels. Substrates are predominantly bedrock, allowing little diversity to develop. Like the upper Siuslaw reaches discussed in the USRAHP, summer temperature extremes

are a problem for salmonids here.

Similar to other stream reaches in the Siuslaw, large wood (LW) once dominated this section of the river but has since been removed. Lack of LW has resulted in downcut channels, gradient discontinuities in tributaries, reduced ground water storage capability and a loss of ability to retain (in channel) recruited trees from the riparian. Due to alteration of the riparian community few large conifers are available for stream channel recruitment. The confined channel does not allow much lateral channel migration.

The river is accessible by foot at many points. It is a popular salmon and steelhead fishing reach, particularly near Whittaker Creek. The easy access has also contributed to extensive chinook poaching and harassment in the same reach.

The Siuslaw Access Road passes along the full length of the reach, but is often upslope out of the riparian area. Access by road to the river is generally limited. The current road network has only a marginal impact on the riparian areas. Currently, only one maintained (BLM) boat ramp exists above the confluence of Whittaker Creek. Several non-designated ramps have been established at old road crossings up stream. The undeveloped ramps on private land have recently been water-barred and prevent further use.

Salmonids use the river here mainly for migration. Some spawning occurs in limited locations throughout the reach. Potential exists for substantially increasing chinook spawning and juvenile rearing (during downstream migration) areas based on channel characteristics and naturally occurring habitat. Adjacent to mile post 3 (MP) on the Siuslaw Access road, nature has created a complex that includes multiple channels, backwater pools, excellent spawning habitats, rearing habitat with LWD cover, locations to collect transient LWD, vegetated islands and still allows for seasonal navigation. One of the few spawning areas regularly used by Fall chinook in this reach is located near MP 3.5. Natural constrictions in the channel have lead to moderate accumulations of spawning gravel. This site is located close to the road and may be a reason for continual problems during Fall months with fish harassment and poaching.

BLM and ODFW have conducted spawning ground counts in portions of this reach. Site surveys are concentrated on the few available spawning areas regularly used by Fall chinook. Surveys for later spawning coho and steelhead are generally restricted due to high winter flow and corresponding high levels of turbidity. Numbers of Fall chinook observed here over the last five years appear good. Typical numbers of spawning chinook in the MP 3.5 location during a single survey is from 10 to 30 individuals.

Restoration proposals are designed primarily to restore the stream channel and groundwater storage, create larger, deeper areas, increase the channel complexity, improve access for boaters at selected sites, and increase the quantity and stability of spawning gravels. In the upper reaches of the Siuslaw

near the confluence of Esmond Creek the primary tool will be creation of several larger, channel-spanning structures with navigability concerns addressed. Strategically placed throughout the reach, they will not only improve habitat in the Siuslaw, but will help to restore habitat and hydrologic function in tributaries. Additional project work through the reach will involve placement of boulders, logs and stumps to increase hiding cover and channel complexity in the mainstem and in tributaries. Reproducing habitats like those at MP 3.5 may be of benefit. Riparian management will emphasize re-establishment of forest with at least 70% conifer. Access to the river through the riparian area should be evaluated, particularly with unmaintained accesses, limiting or closing existing access and roads to reduce impacts on riparian and aquatic habitat. Culvert replacement, bank stabilization, and road upgrading will be used to reduce sediment production into the river and improve fish passage.

Big Canyon Creek

Big Canyon Creek is a fourth order stream entering the Siuslaw River in T.18S-R.8W-Sec. 22. The stream drains approximately two square miles. The channel is moderately entrenched in the lower one-half mile (BLM ownership) with the channel bed dominated by boulder materials. Constrictions in the channel provide collection points for LWD which consists largely of old conifer logging slash and recruited hardwoods. Rapids and riffles, with irregularly spaced pools characterize this lower area. Confined channels often cause scour to bedrock in many locations where LWD is absent. The best habitat is found in the unlogged headwaters in Section 25.

Road No. 18-8-22 parallels almost three-quarters of the total length of the stream from the confluence. Log stringers used to bridge the channel in two locations of Section 27 are gone and prohibit access on road 18-8-22. Recently, plugged culverts here have led to massive wasting of the road and adjacent stream banks in Section 27. In 1977, channel stability near the confluence was lost when a LWD jam was removed. In 1990, BLM completed enhancement work in this section. Alder structures that had been placed by hand to provide much needed complexity were gone the following year.

Since 1984 observations of steelhead and coho spawning have been documented by BLM. Cutthroat, lamprey and cottid species have also been observed in the lower 2000 stream feet. No recent population or species composition sampling have been completed.

The basin is managed for timber production and exhibits various stages of harvest. Recruitable vegetation consists largely of hardwoods. The lack of LWD has resulted in a general lack of suitable habitat for salmonids. Increased salmonid production potential is proposed by means of aerial placements of LWD. Delivery of structural materials to the stream using a helicopter would be preferred over rebuilding the two bridges, numerous culverts and the existing roadway.

PROPOSED ACTION

The Proposed Action includes five general categories of work. One or more activities may be performed at each of the project locations.

1. Culvert Rehabilitation

Culverts may create barriers to the movements of anadromous fish and other aquatic species, and contribute to modifications in natural hydrologic processes that may create flood and erosion hazards. Four types of rehabilitation are proposed in the Esmond Creek Basin.

a. Removal. Culverts are removed and not replaced. The removal involves digging out and lifting the culvert. The site where the culvert is removed is shaped and stabilized to reduce the potential for erosion.

b. Replacement. The existing culvert is removed by digging out and lifting from its location in the streambed. The culvert is replaced with another culvert, a half-arch or a bridge. The choice of replacement will depend upon the flows at the site and the need to provide for movement of anadromous fish and aquatic organisms up and downstream. Additional excavation may be needed to accommodate a larger structure or a structure of a different type. Excavated areas will be stabilized and protection provided to reduce the potential for erosion.

c. Improved access. For culverts creating a barrier to movements of anadromous fish and other aquatic organisms, and where removal or replacement are not feasible, access to the culvert may be created or improved by placement of structural material in the channel. This structural material will be primarily logs and boulders placed to elevate the stream channel and create pools to facilitate movement into the culvert. Short-term disturbance of the stream channel and stream bank may occur as a result of accessing the channel with equipment and materials, and from working within the stream channel.

d. Improved culvert passage. When culverts are too steep to permit passage and either replacement or removal are not feasible, passage through the culvert may be facilitated by placement of baffles, weirs, or similar type structures in the culvert. This breaks up velocity barriers and provides resting places for fish and other aquatic organisms.

From July 1 through September 15, 2000 three culvert removal/replacement projects are scheduled to occur in the Esmond Creek drainage. The project sites are denoted on maps provided in the appendix. The maps are titled “Esmond Creek” and are listed as T.18S, R08W. Sec. 33-34. Pre-project surveys showed that all three culverts are migration barriers to salmonids and other aquatic organisms. In addition, fish presence was detected above the first two barriers and suitable salmonid habitat exists above all three. A site survey conducted in April 2000 showed juvenile coho salmon directly below two of the three sites.

The Esmond Creek culvert replacements will follow procedures outlined previously in paragraph “b” (this page). Pipe arches will be installed at all three sites. Pipe sizes are as follows: Site 1 - 103"W x 71"H x 62'L ; Site 2 - 103"W x 71"H x 58'L ; Site 3 - 73"W x 55"H x 52'L. Culverts 1 and 2 will be placed below current stream grade by approximately two feet. Culvert 3 will be placed on 10% grade and will be filled with cobble/rubble sized substrates after placement. Supplemental jump weirs may be installed below Site 3 in years following if future grade adjustments related to aquatic organism passage is found to be necessary. During the installation phase, identified barrow sites will be used to temporarily store existing fill adjacent to the old culverts. Barrow site fill will be replaced around the new culvert placements.

2. Channel Structure

Channel structuring involves placement of materials in the channel to raise the channel elevations and to increase the complexity of habitat in the channel. Materials used are primarily boulders, logs, stumps, rock and gravel. Designs are based on existing structural features occurring naturally in the system, and on structures previously developed by the Eugene District, other BLM Districts, or other agencies. Proposed structures are designed specific to a location, and take into account existing channel and riparian features.

Materials may be delivered to designated sites at the project location well in advance of project work and stockpiled at the project site; or they may be delivered to the site at the time they will be used, reducing the need for stock-piling and handling.

Creation of structural features utilizes some hand work, but primarily involves use of heavy equipment or aircraft to deliver and place the materials. Once in place, the larger structural materials are generally anchored to the substrate using cables and epoxy. Smaller logs, rock and gravel may be allowed to move in response to the current. Because of the lack of retention features, many of the materials, particularly logs and stumps, would move out of the river system if not anchored. Once anchored, they create collection points to retain placed material or materials entering the channel from adjoining slopes. Two types of equipment are proposed for moving and placing the structural materials.

a. Heavy equipment. Structural materials for most project work will be delivered to the channel and placed in position in the channel using excavators, front end loaders or similar equipment. Temporary accesses are created from existing roads through the riparian area to the channel. Most access routes will be under 200 feet in length, and are generally located in areas where riparian vegetation restoration is planned, and will be sub-soiled after project work is completed to create planting sites. The development and rehabilitation of the access routes are designed to reduce the potential for erosion and channel disturbance, and in many locations utilize existing older roads and accesses.

b. Aircraft. Several project locations are a kilometer or more from the nearest developed road.

In order to reduce the disturbance from road construction, it is proposed to deliver and place structural materials utilizing helicopters. Structural materials would be stock-piled at a nearby landing location and ferried to the project site and lowered into place.

Several types of channel structures are proposed. The structures are placed in combinations in and along the channel. Design depends upon the existing conditions and potential of the site. The following descriptions are for the general types of structures used.

a. Weirs. Weirs are full-spanning structures of logs, boulders and/or stumps. They extend up the bank to protect against erosion around the end of the weir. The height and length depend on the individual site conditions.

b. Cascades. Cascades function similar to weirs in raising the upstream channel elevation. They are constructed of boulders, logs and rock, with the highest point at the upstream end. The front face slopes downstream in a typical cascading pattern. While the cascades are predominantly boulder, diversity and stability is provided by logs. Smaller rock and gravel are added to fill pore spaces around larger boulders. The design and dimensions are based on similar natural structures found in the Siuslaw river system, and are designed to increase the stability of the structure and to increase the diversity of habitat, particularly for invertebrates and amphibians.

c. Jetties. Jetties are structures of boulders, logs and/or stumps extending from the bank into the channel but not spanning the channel. They are designed to re-direct flow and to create diverse habitats along the margins of the channel.

d. Ramp logs. Ramp logs are logs with one end up on the bank and the other end extending into the channel. They function similar to jetties.

e. Log and boulder placement. Individual or clusters of logs, boulders, and/or stumps are placed in the channel in various positions to break up flows, create small islands, and increase habitat diversity.

f. Gravel placement. Because of the limited gravel delivery to the stream channel, gravels may be placed in the channel to facilitate development of salmonid spawning areas. Gravel is usually placed in the channel above the locations where it is needed, and the current is used to distribute the gravel to the structures.

3. Riparian Restoration

The purpose of riparian restoration is to increase the percentage of conifers in the riparian area as a future source of large woody material in the channel, and to create snags and woody debris in the riparian area. Riparian zones are currently dominated by red alder, with some big leaf maple and

mixed-age conifers. Restoration efforts are planned primarily for the red alder-dominated communities.

In developing accesses from existing roads into the stream channels, routes are selected that facilitate riparian restoration. Red alder along the access routes are removed, with the downed trees placed in nearby riparian areas or in the stream channel. Once the stream channel project work is completed, the access routes are subsoiled to create suitable conditions for planting of trees. Additional red alder may be removed in patches adjoining or away from the access routes to reduce shading in planting sites. Brush may be removed from additional adjoining sites. The sites where trees and brush are removed away from the access routes are not usually subsoiled. Trees are felled using chain saws or other hand equipment, or are girdled and allowed to die and fall over time, or felled using heavy equipment (i.e., excavator). Brush is generally removed in areas where trees are felled or girdled. Conifers and larger big leaf maple are preserved wherever possible. Where younger conifer are present, competing vegetation may be removed to release the conifer.

During the subsequent planting season, usually the winter months following site preparation, trees are planted in the prepared locations. Species for planting include Douglas-fir, western redcedar and western hemlock, depending on the site conditions and proposed species mix. Trees are tubed to reduce browsing. Competing vegetation is controlled by placing mats around the trees, or by brushing during subsequent years.

4. Road Stabilization

Several options are identified for addressing problems to the aquatic system created by roads. The road network that extends throughout the Esmond Creek Drainage project area is managed by BLM and RRC. Frequently multiple users have rights of way on existing roads. Options for addressing problems in the aquatic system due to roads depends upon decisions made cooperatively by the agencies, companies and individuals that control or use a particular road segment. The BLM Transportation Planning Process will be completed prior to initiation of proposed actions "a-c." Proposed actions involving road closures (option d) will be covered under a separate environmental assessment. Options identified for road rehabilitation include:

a. Surfacing of roads. Roads, particularly those used in wetter periods, may be surfaced with rock or paved to reduce the potential for silt entering the aquatic system.

b. Improved drainage. In addition to modifying culverts, drainage may be improved by water-barring, providing sub-surface drains, improving ditching, or other steps that would reduce erosion hazard, reduce water interception, and reduce hazards for slope and fill failure. Road cuts and fills may be treated to reduce erosion and potential for slumping.

c. Limit access. Access may be restricted as to the types of activities, and to times of the year

when access may be permitted. This may be done by using signing, gating, barriers, administrative limitations, or other methods.

d. Road closure. Roads may be barricaded to limit access, subsoiled and planted, or reshaped by moving road fill so that the land surface more closely resembles natural contours.

5. Monitoring

The use of a rotary trap is proposed to monitor Esmond Creek basin fish escapement trends as related to restoration efforts.

ANALYSIS OF IMPACTS

Critical Elements

There would be no adverse impacts from the proposed action to regional or local air quality, prime or unique farmlands, cultural resources, floodplains, areas of critical environmental concern, environmental justice, native American religious concerns, threatened or endangered species, invasive nonnative species, hazardous or solid waste, wild and scenic rivers or wilderness. Water quality, riparian zones, and the habitat of the threatened coho salmon are expected to benefit from the proposed action.

Proposed Action

All proposed actions require some disturbance of the road right of way, riparian zone or stream channel. All actions are in locations that have been previously disturbed by management activities. The extensive existing road network provides access for most locations for which activities are proposed. No new roads will be created as a result of the proposed actions, although temporary accesses would be needed for movement of equipment and materials from existing permanent roads to restoration sites in the riparian and stream channel. Where available, existing access routes and roads would be utilized for access into and through the riparian area. All temporary accesses and most of the existing access routes that will be utilized for project work would be rehabilitated and revegetated after project work is completed.

The primary immediate impacts of the proposed actions are the reduction in existing riparian vegetation, the potential transitory increase in sediment production, disruption of riparian soils, and potential disturbance of aquatic communities. Timing of the work during low water periods, maintenance of buffers around work in riparian areas and on-site steps to control erosion are used to limit potential impacts. The longer-term impacts of the proposed actions are to increase the available aquatic habitat, increase the supply of large conifers, improve passage for fish and other aquatic species, reduce potential for erosion, and improve hydraulic processes.

Required clearances for sensitive, proposed, listed or survey and manage plant and animal species would be completed prior to any on-ground work and any necessary adjustments made to the plan to protect species located during clearances. Accesses, project activities and timing of project work would take into account potential impacts on wildlife, such as nesting periods. The primary impact is expected to be disruption from operation of heavy equipment in riparian areas and the stream channel. The disruptions would be short-term.

As a result of the placement of structures in the stream, water surface levels would be raised at all flow levels. During peak flows more water would flow into riparian areas. Project designs reduce the potential for erosion. The flooding of riparian areas provides a positive benefit for deposition of silts in riparian areas and increased groundwater infiltration. Previous stream projects that have raised water levels have resulted in an increase in wetlands in the adjoining riparian area. The projects are expected to contribute to an overall improvement in water quality and reduced flooding downstream.

1. Culvert Rehabilitation. Culvert removal or replacement requires excavating around the existing culvert and lifting the culvert from the stream channel crossing. Additional excavation may be required to accommodate a larger replacement culvert or bridge. The primary impact is the temporary, transient increase in siltation resulting from excavation and movement of the culvert or bridge materials.

The FY 2000 removal/replacement of three barrier culverts in the Esmond Creek drainage (T19S, R.08W. Sec. 33-34) will include all impacts stated in the previous paragraph. All actions are in areas that have previously been disturbed by management activities. No new roads will be created as a result of the proposed actions. Although a temporary and transient increase in sediment is projected to occur, impacts are expected to be minimized due to the timing of these actions (low flow summer months).

2. Channel Structure. While some channel structure placement may be done from existing roads, most require improving existing secondary access routes or development of temporary access from existing roads into the stream channel. The access is used for moving machinery and materials from the road into the channel. In previous channel structure project work, most of the access routes through the riparian zone followed existing old roads or trails. Where such old roads or trails are present, they will be utilized in lieu of developing new access routes. Some disturbance to vegetation and soils occurs as a result of the development and use of access routes. Where compaction occurs, the access routes are subsoiled to break up the compaction and prepare the site for planting. Following completion of project work, the access routes are rehabilitated to reduce potential erosion and trees are planted along access routes and adjoining areas to both rehabilitate the access routes and increase the future source of large woody materials. Ground vegetation, primarily of rapidly growing annuals and perennials, begins recovery within months of the completion of project work.

Within the channel, the machinery moves for variable distances up and down the channel to place the logs, boulders, and smaller rock delivered to the channel. The movement and placement of materials

may disrupt the channel bed and banks, producing a transient increase in silt at the project location. In most project locations bedrock is the dominant substrate, reducing potential impacts and silt production from project activities. No mortality of salmonids has been observed from channel structuring, although some mortality of sculpin and invertebrates has been seen. Disturbed banks are protected through placement of boulders or logs at the time machinery is removed from the creek.

In the longer term the channel structure alters the complexity of stream habitats. The structures are expected to raise the elevation of the stream channel, increase deposition of gravels and other sediments, and to increase the amount of pool and nursery habitat. Channel changes occur during peak flow periods, with structures designed to influence flows and sediment movement during these flow periods. Some bank erosion may result from placement of instream structures during high flow events.

Stream structuring utilizing helicopters will not require development of accesses into the stream. Staging of materials will occur on existing roads and landings. Material will be transported by air directly to the stream channel. Disturbance of the stream channel will occur as a result of the placement of logs, boulders, and stumps, with an attendant transient increase in silt. Longer term impacts will be similar to those from channel structuring using machinery.

Anchoring of logs, boulders and stumps with epoxy and cable is done by hand in already disturbed project locations and does not entail additional disturbance to the site.

3. Riparian Restoration. Most riparian restoration projects are designed to be undertaken at the same time as channel structuring. Accesses for channel structuring are often developed in locations where riparian restoration is proposed. Following completion of channel structure project work the accesses are subsoiled to prepare them for planting. Machinery and hand cutting may be used to remove additional red alder and brush along the access routes. Additional planting areas may be opened to reduce overstory trees and understory vegetation using hand tools. Removal of overstory trees will increase the amount of sunlight reaching planted areas. Retained trees, particularly red alder and big leaf maple, will increase lateral branching following removal of trees, partially to completely filling the overstory openings over time. Because only patches of trees in various shapes are removed, impacts on riparian conditions are limited. Because of retention of riparian vegetation on the side of the stream opposite the planting sites, and retention of a buffer along the stream on the side where planting will be done, the stream itself receives little additional sunlight. Travel corridors are maintained. Microclimate conditions along the stream remain similar to pre-project conditions.

Over time, it is anticipated the percentage of riparian areas in conifer will increase. Growth of planted conifers is accelerated through use of standard silviculture practices such as tubing to reduce browsing and control of competing vegetation. Impacts on vegetation communities resulting from silvicultural practices are similar to those in other forest units.

4. Road Stabilization. Direct impacts on streams from road stabilization activities are minor, and

are limited primarily to a transient increase in silt entering streams. In the long term, it is anticipated that the road stabilization will reduce siltation into the streams, and will improve hydrologic functions of the basin by reducing water interception, routing into channels, and loss of water from groundwater storage. Barricading or closing of roads also reduces traffic in riparian areas, together with associated positive impacts on water quality and aquatic communities.

Proposed Schedule

The Middle Siuslaw - Esmond Creek Aquatic Habitat Restoration Plan is designed as a multi-year plan. Implementation may occur over a five to ten year period. Project funding availability will be the driving force for scheduled project work. The ability for cooperating partners to complete enhancement efforts will also affect plan implementation. Stream restoration efforts in the Esmond Creek basin are scheduled to begin in 2001 with culvert work beginning in the Summer of 2000.

ALTERNATIVES TO THE PROPOSED ACTION

1. No Action

Under a No Action Alternative, no additional actions would be taken to increase stream structure, replace culverts, restore riparian areas or stabilize roads. Culvert and road work already occur as part of the district road maintenance program. However, the emphasis would be on road stability and not on assisting with recovery of the aquatic system and its associated fauna. Under the No Action alternative, no stream channel restoration would be done, and riparian restoration would be primarily associated with vegetation manipulation carried out for other purposes. Both the stream and riparian habitats would be expected to show only very gradual recovery over a much longer period of time as a result of management actions taken under this alternative.

2. Partial Implementation of Proposed Actions

The Proposed Action Alternative describes a variety of options for culvert, stream channel, riparian, and road restoration work for the Siuslaw and its tributaries in the project area. The Proposed Action does not require that all actions be implemented; instead, another option is to implement selected portions of the Proposed Action although at reduced scale. Impacts of individual actions would be the same as the Proposed Action. The difference would be in the scope, with fewer positive or negative short or long term impacts.

UNAVOIDABLE AND ADVERSE IMPACTS

No Unavoidable Impacts have been identified for the Proposed Action.

Impacts include a transient increase in sediment from culvert rehabilitation, road stabilization and channel structuring; a temporary reduction in overstory vegetation in riparian areas during riparian site preparation and planting, and disturbance of fishes and invertebrates in the stream channel during culvert rehabilitation and channel structuring.

SHORT TERM VS LONG TERM IMPACTS

Short Term impacts include the transient increase in silt production, reduction of overstory riparian vegetation and disturbance to aquatic organisms.

Long Term impacts of the Proposed Action include benefits such as the increase of conifers in the riparian areas, reduction of silt, improved passage at culverts with a reduction in the potential for road failures, reduced human impacts in riparian areas, an increase in channel complexity, an increase in availability of habitat for all native aquatic species, an improvement in water quality, increased stream channel and riparian complexity, and improved hydrologic function.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

No Irreversible or Irretrievable Commitment of Resources have been identified.

MITIGATING MEASURES

The following mitigating measures have been identified:

1. Guidelines established for timing of stream enhancement work by the ODFW will be adopted. Changes to the guidelines will be in concurrence with BLM and ODFW.

2. To prevent the further spread of noxious weeds require cleaning of heavy equipment prior to entering project areas

3. Keep roading of heavy equipment to a minimum in project areas to prevent the spread of noxious weeds.

4. At project sites retain as much coarse woody material (including stumps) as possible.

5. Do not seed roadsides with non-native species mixtures.

6. If erosion control is necessary, seed with a pure seed mixture of annual (70%) and perennial (30%) rye.

7. All tree falling would occur away from BLM Tracking and Survey and Manage (SM) sites.

8. No prescribed burning, tree planting, salvage logging, or other human disturbances in BLM Tracking and SM sites.

9. When working in or next to the stream channel spill kits and an approved plan will be included in operations.

10. To reduce the potential for introduction of silt or petroleum products, when stream depth and channel conditions allow, use of a by-pass or retaining basin may be adopted.

11. Follow terms and conditions for riparian and instream work as described in the Programmatic BA/BO for the Oregon Coast Range Province as related to the Coastal Coho ESU.

12. For FY2000 projects in the Esmond Creek drainage (culvert replacements) all exposed sites will be hydromulched. Straw bales will be used for erosion as directed by the contracting officer.

MONITORING AND EVALUATION

Prior to implementation of instream project work a photographic and descriptive record is made of existing habitat in project areas. Pre-project inventories are generally conducted in proposed enhancement reaches by BLM, but have been completed by the ODFW (a cooperator). When possible, project locations are identified using Global Positioning System (GPS). Collected GPS data is then added to the District GIS data system. Pre-work sampling to estimate current juvenile salmonid and other fish species populations is conducted in selected habitats using seining/electrofishing and or snorkeling. For project areas used by anadromous salmonids, spawning counts conducted for up to 14 years provide a baseline for pre and post project comparison. Post project photographs are taken to show completed work and adjacent habitat prior to exposure to stream flow extremes. Successive photos are taken to document changes in project stability and effects on adjoining riparian and stream habitats. Spawning ground counts are continued in established index areas. Juvenile sampling, using snorkeling and electrofishing, is used to document use of structures. Information is also collected on non-salmonid fish species both before and after project work. The use of a rotary trap is proposed to monitor Esmond Creek basin fish escapement trends as related to restoration efforts. Reference macroinvertebrate samples are also collected at some project sites. Tree survival and growth are documented in riparian restoration areas during at least the first five years following planting.

CONSULTATION AND COORDINATION

1. Private Lands. Under the Oregon Coastal Salmon Restoration Initiative and authority provided to BLM by the Wyden Amendment, BLM has agreed to cooperate with other land owners in

development and implementation of aquatic habitat restoration. Potential projects on lands owned by Roseburg Resources Company (RRC) are identified in the list of potential projects. A Memorandum of Understanding among RRC, ODFW, and the Eugene District provides for cooperative restoration activities. In discussions among the Eugene District, RRC, and ODFW, it was agreed that BLM would identify potential restoration opportunities on lands owned by the corporation. This plan, with identified opportunities, will be discussed with the corporation in order to identify situations where coordinating work on both private and federal lands could be done more efficiently than having restoration work done as separate projects. Discussions have also been held with the ODFW, and with Lane County Roads on potential cooperative projects. Opportunities exist for cooperation with other private land owners or state agencies to participate in restoration activities. Discussions with other private landowners is expected to be mainly through the Siuslaw Watershed Council. The Wyden Amendment offers increased opportunities to develop cooperative restoration projects with other landowners in the project area.

2. Sensitive Species. BLM has completed an inventory of resident and anadromous fish species on Federal lands within the project area that are classified as threatened or candidates for listing under the Endangered Species Act. Initial Survey and Manage species inventories for species included in the SEIS ROD have begun. Prior to beginning on-ground project work on an individual project, BLM will complete all required plant and animal consultation, conferencing, and protocol clearances. In the event a sensitive species is present, the individual proposed project site will be modified or excluded as required in order to protect the identified sensitive species.

As a result of the decision to list Coastal Coho salmon as "threatened" under the ESA by the National Marine Fisheries Service (August 10, 1998), consultation is required to conduct stream restoration efforts that are Likely to Adversely Affect. Enhancement work proposed in this EA is covered under the Programmatic Biological Assessment for the Oregon Coast Province (Jul 23, 1999) and Biological Opinion (July 28, 1999) and covered for Threatened and Endangered wildlife species under U.S. Fish and Wildlife's Biological Opinion (February 11, 2000).

3. Cultural Resources. No cultural resources have been identified to date in the actual project locations. All required cultural resource reviews would be completed before any project work is undertaken.

4. Wild and Scenic Rivers. In the 1995 Eugene District Resource Management Plan (RMP) a portion of the Siuslaw River in the proposed project area was found as eligible for designation under the Wild and Scenic Rivers Act. The primary outstanding resource values were anadromous fisheries, wildlife and recreation. The proposed action would benefit those outstanding resource values.

5. Navigability. The portion of the Siuslaw River within the project area is not recognized by BLM as navigable (RMP), but is considered navigable by the Division of State Lands (DSL). A need to consult with DSL prior to making changes that potentially effect navigability will be necessary. Portions of the river in the project area are occasionally used by recreational boaters using canoes, kayaks or rubber rafts. Because of the limited access points, only a few sections are accessible for boating activity. Low flow patterns and frequent obstacles of boulders and logs also serve to limit use. The

proposed habitat structures would in some cases improve potential for floating and in other cases would increase the difficulty.

6. State and County Land Use. Aquatic and riparian habitat restoration was found in the District RMP to be compatible with existing State and County land use laws. The proposed actions are compatible with the Coastal Zone Management plans and goals.

7. Permits. All required permits will be obtained prior to the beginning of project work. The majority of restoration activities will require only ODFW and State Lands waiver permits. Several of the structures exceed 50 cubic yards of fill so will require permitting through the State Lands-Corps of Engineers excavation and fill permitting process. A part of the proposed project work is already covered by an existing State Lands-COE permit, FP-13963. This project work, referred to as the Siuslaw Oxbow project, was submitted as a separate project in 1997. Because of delays with permitting and funding approval, the work was not completed in 1997. The Siuslaw Oxbow project is now incorporated into the Upper Siuslaw project. A request for permit modification will be necessary for projects not currently covered under FP-13963.

8. Aquatic Conservation Strategy. The proposed action is in compliance with the Aquatic Conservation Strategy as described in the Eugene District RMP and Record of Decision, the Record of Decision for the Supplemental EIS for the Northern Spotted Owl, and the Biological Opinion issued by the National Marine Fisheries Service on 18 March 1997.

Preparers:

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Graham Armstrong, Hydrology
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Ryan Turner, Botany Technician
Eric Meyers, Civil Engineering Technician
Brett Jones, Civil Engineering Technician

REFERENCE

Oregon State Game Commission, 1969. 1969 rotenone sampling of the Siuslaw River. Report. 18pp.

USDA, Forest Service and USDI, Bureau of Land Management. February 1994. Final supplemental environmental impact statement on management of habitat for late successional and old-growth forest related species within the range of the northern spotted owl (Northwest Forest Plan).

USDI, Bureau of Land Management. June 1995. Eugene District Record of Decision and Resource Management Plan. Eugene District Office, Eugene, Oregon

USDI, Bureau of Land Management. February 1996. Siuslaw Watershed Analysis. Eugene District Office, Eugene, Oregon.

USDI, Bureau of Land Management. March 1998. Upper Siuslaw River Aquatic Habitat Restoration Plan. Eugene District Office, Eugene, Oregon. 55pp.

USDI, Bureau of Land Management. June 1998. Esmo-Whitt Subwatershed Analysis. Eugene District Office, Eugene, Oregon.

U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE
MIDDLE SIUSLAW-ESMOND CREEK AQUATIC HABITAT RESTORATION PLAN

PRELIMINARY FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment No. OR-090-00-14

FINDING OF NO SIGNIFICANT IMPACT

The Coast Range Resource Area, Eugene District, Bureau of Land Management, has completed an Aquatic Habitat Restoration Plan and Environmental Assessment for aquatic habitat restoration projects in the Siuslaw River Basin, western Lane County, Oregon.

The design features of the Proposed Action and Alternatives are described in the Environmental Assessment OR-090-00-14. Project work would improve the quality of aquatic and riparian habitat in the Siuslaw River and tributaries. The Proposed Action is fully consistent with the objectives and restoration recommendations in the Eugene District Resource Management Plan and Record of Decision, and the Aquatic Conservation Strategy in the Northwest Forest Plan.

Based on extensive experience with similar work in the Siuslaw River Basin, in other Oregon coast streams, and evaluation of similar project work, no significant adverse impacts are expected to: Flood plains or wetland/riparian areas, wilderness values, cultural resources, prime or unique farmland, wild and scenic rivers, air quality, Native American religious concerns, low income or minority populations, or water quality.

On the basis of information contained in the EA, and all other information available, it has been determined that the Alternatives analyzed will not have significant environmental impacts not already addressed in the Eugene District Resource Management Plan and Record Of Decision, and do not constitute a major Federal action affecting the quality of the human environment. Therefore, an Environmental Impact Statement or supplement to the existing Environmental Impact Statement is not necessary and will not be prepared for this proposal.

APPENDIX

Burntwood Cascades 199

Siuslaw River - Project completion Aug

Stage Coach Road Cascade

Wolf Creek Cascade

Road Closure at Saleratus Creek

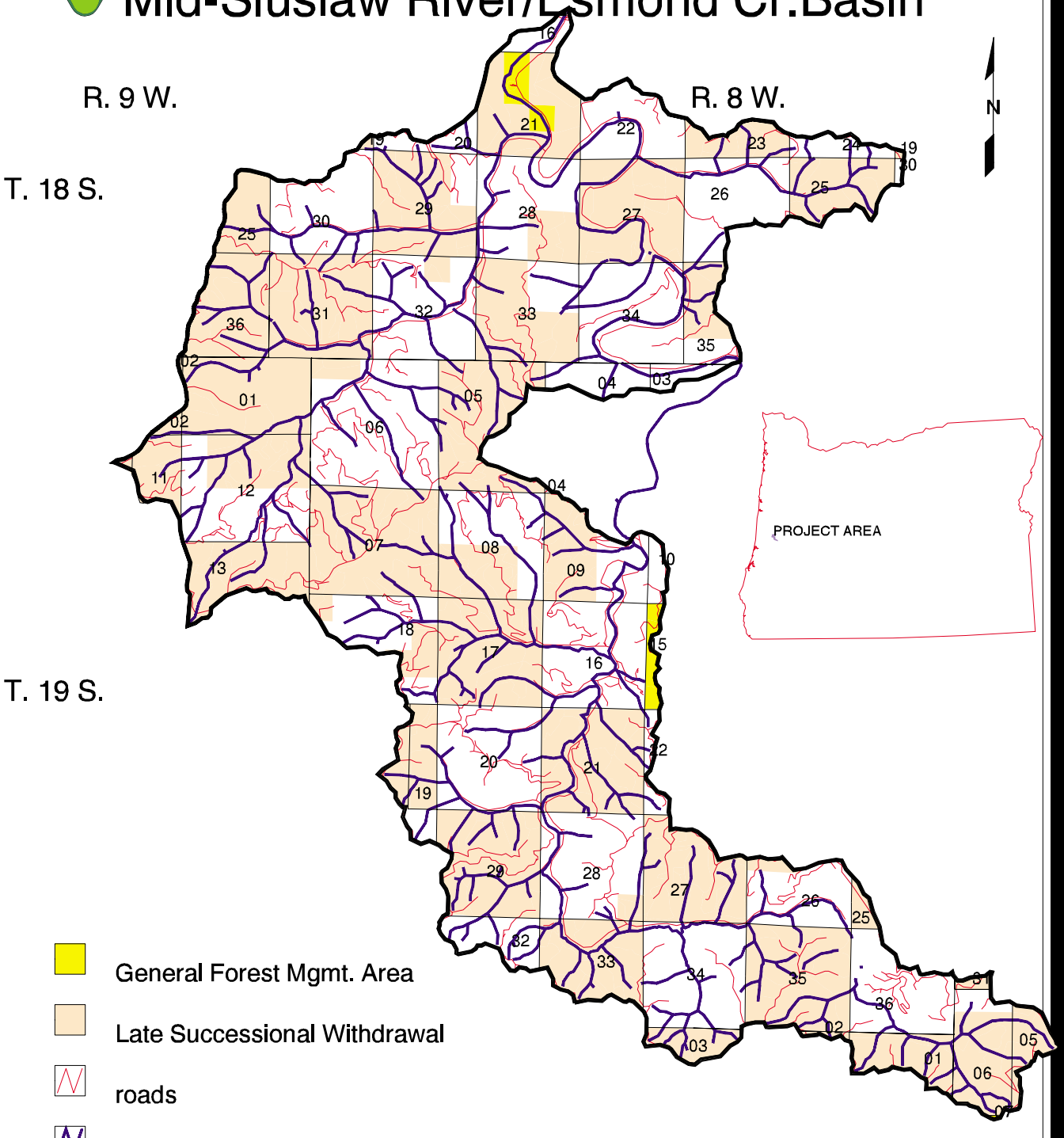
Road Rehabilitation at Gall Cree

Cannon Culvert Upper Siuslaw Drainage

Culvert with Severe Drop

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Mid-Siuslaw River/Esmond Cr.Basin



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Riparian Conversions

Esmond Creek Plots

Oxbow Creek Plots

WHITTAKER CREEK STREAM ENHANCEMENT 1998

SOUTH FORK WHITTAKER CREEK - BLM

Boulder Weir

Boulder Cascade

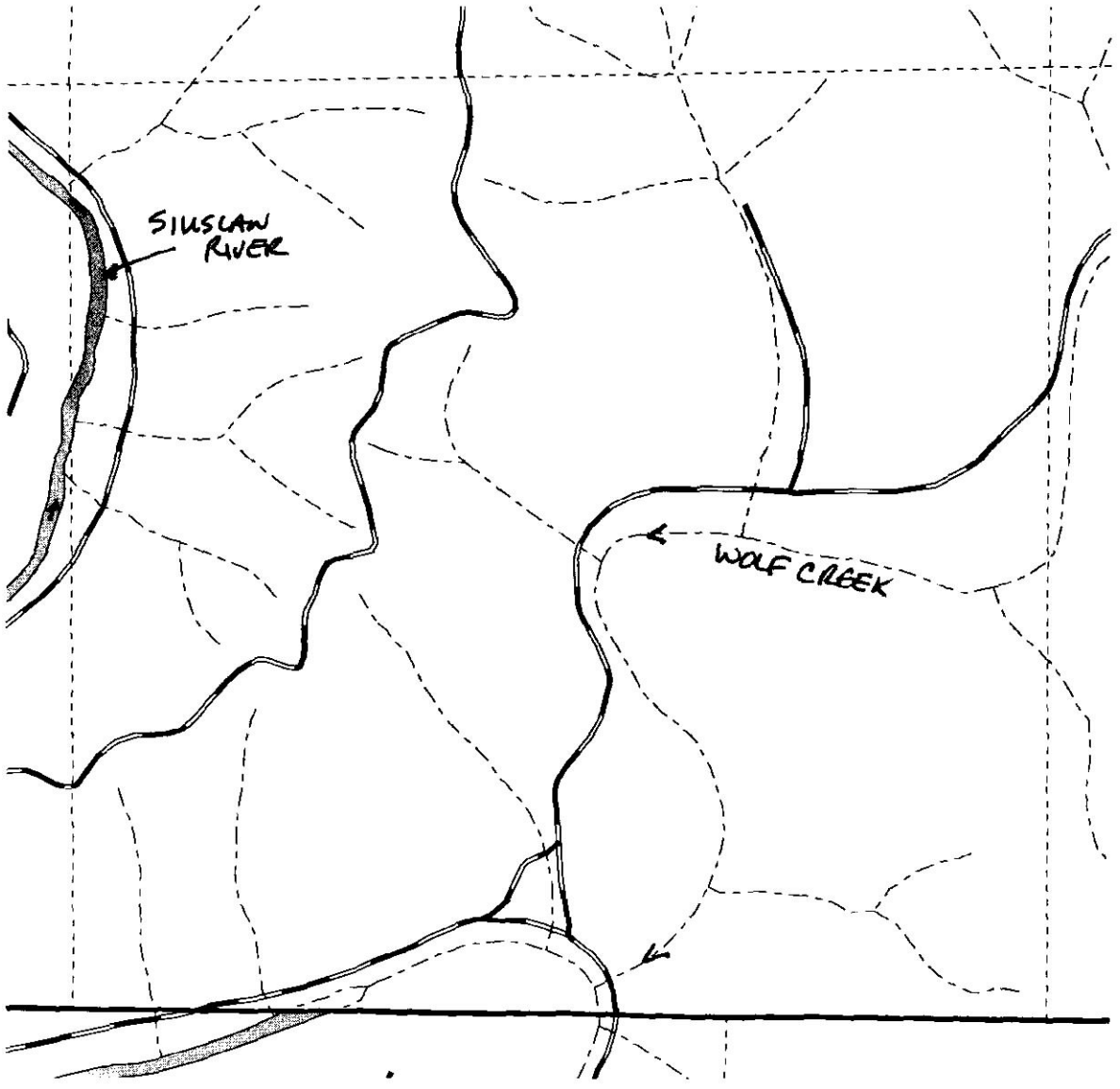
Boulder/Log Complex

Cover logs/Boulder Clusters

Deflector Logs

Multiple Log Complex

Boulder Jetties/Clusters/Log Deflectors



= FUTURE PROPOSED STREAM ENHANCEMENT LOCATIONS

BLM
Streams
Roads
Railroads

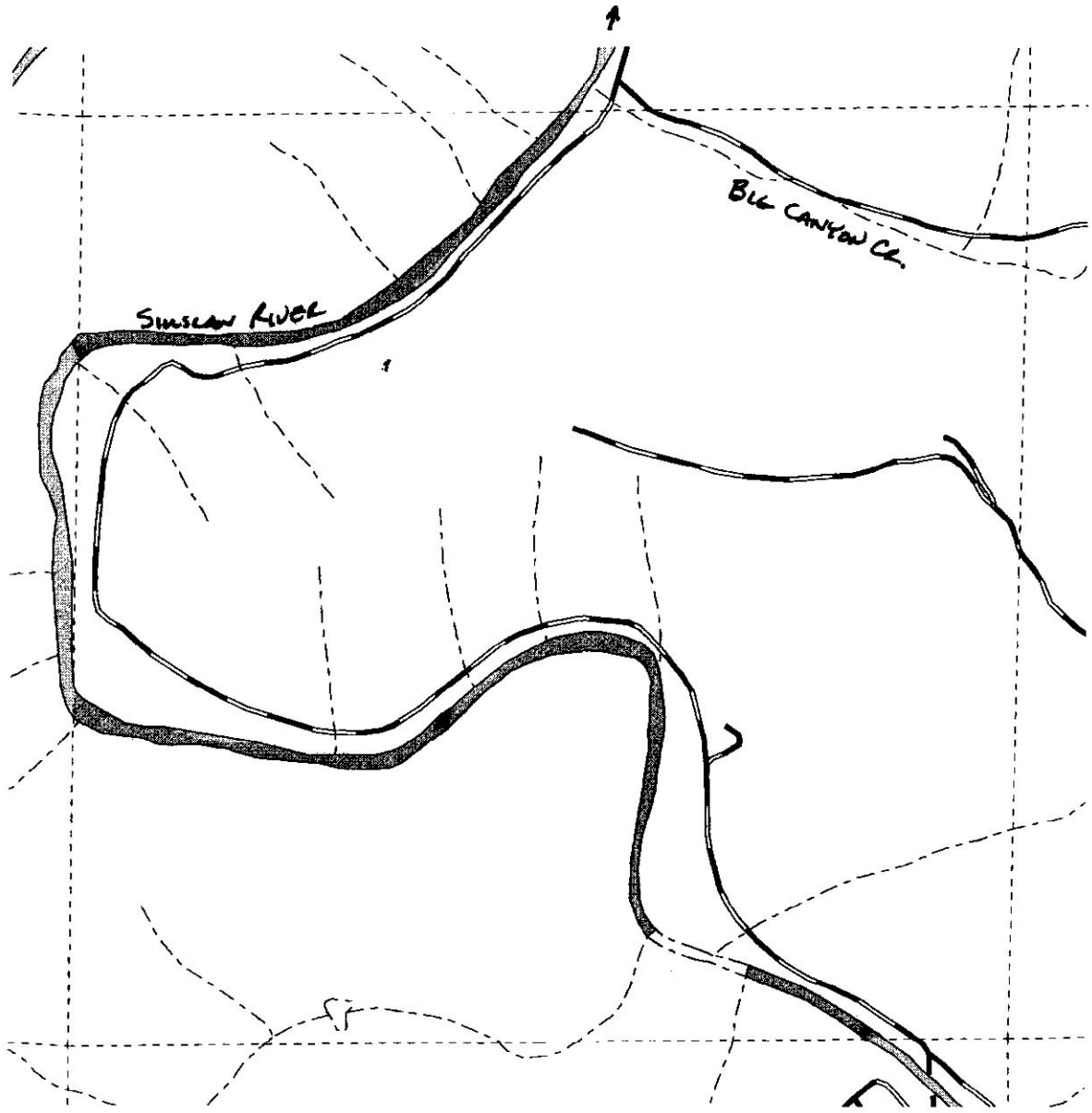
Middle Siuslaw

T.18S, R.08W. Sec. 35

Scale 1:12000

1000 0 1000 2000

Feet



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BLM
Streams
Roads
Railroads

Middle Siuslaw

T.18S, R.08W. Sec. 27

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Feet

L. Poole

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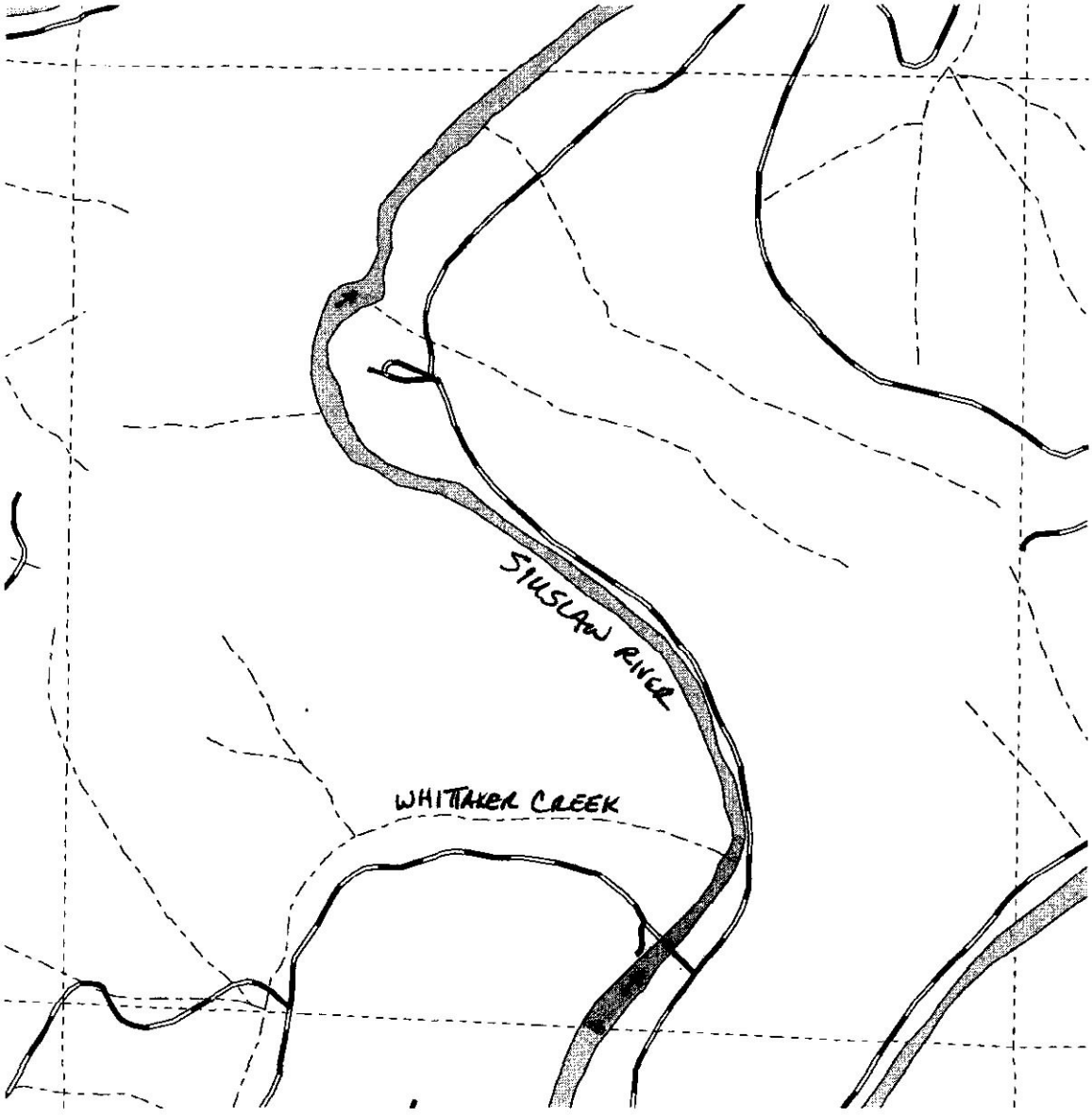

= FUTURE PROPOSED STREAM ENHANCEMENT LOCATIONS

Middle Siuslaw

BLM
Streams
Roads
Railroads

T.18S, R.08W. Sec. 21

Scale 1:12000

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Feet

L. Poole

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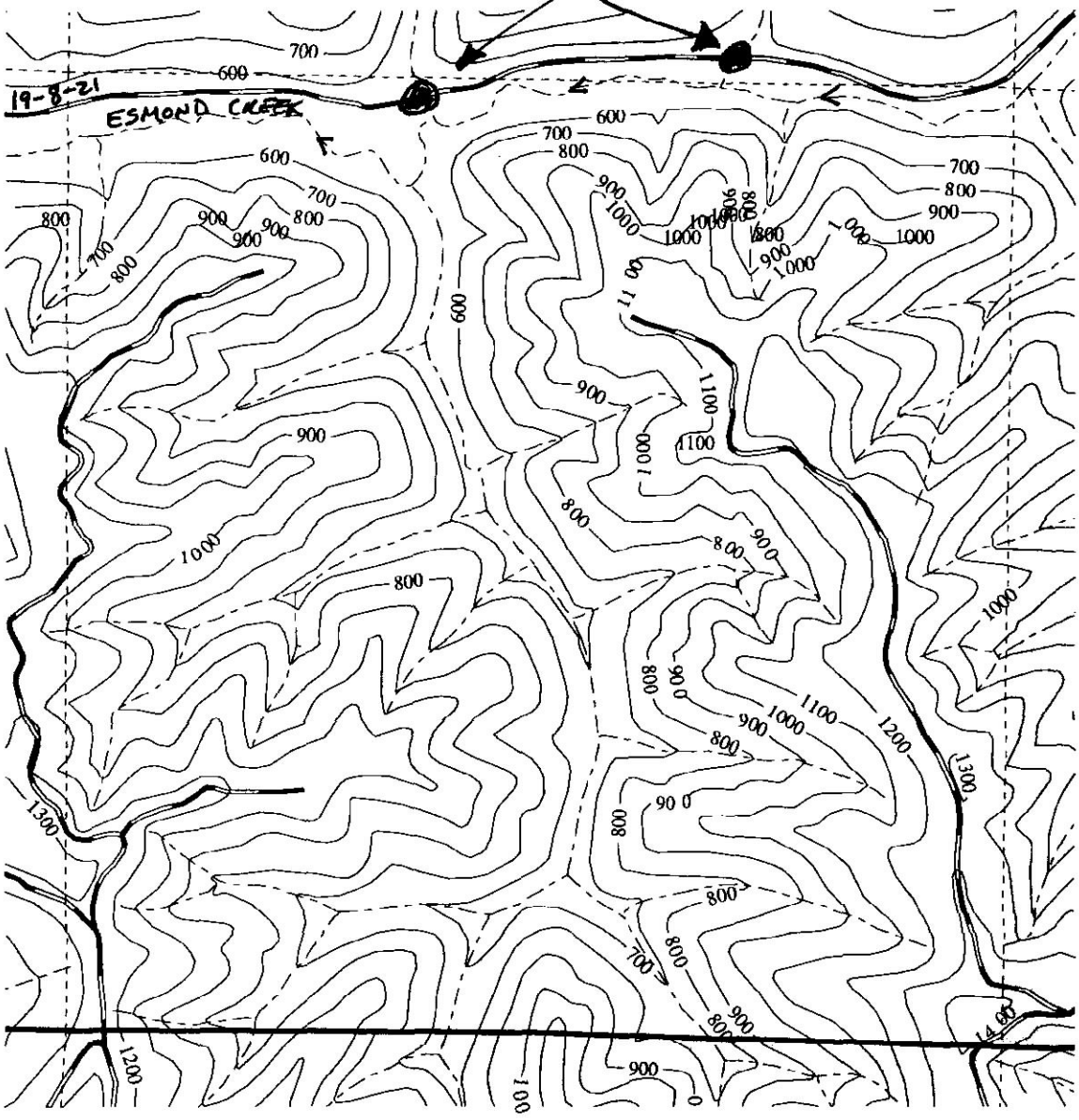
FY 2000 PROPOSED CULVERT REMOVALS/ REPLACEMENTS



Esmond Creek

BLM
TAE (0)
Streams
Roads
Railroads

O = CULVERT REPLACEMENT FY 2000

T.19S, R.08W. Sec. 34

Contour Interval: 100 Ft

Scale 1:12000

1000 0 1000 2000

Feet

L.M.Poole

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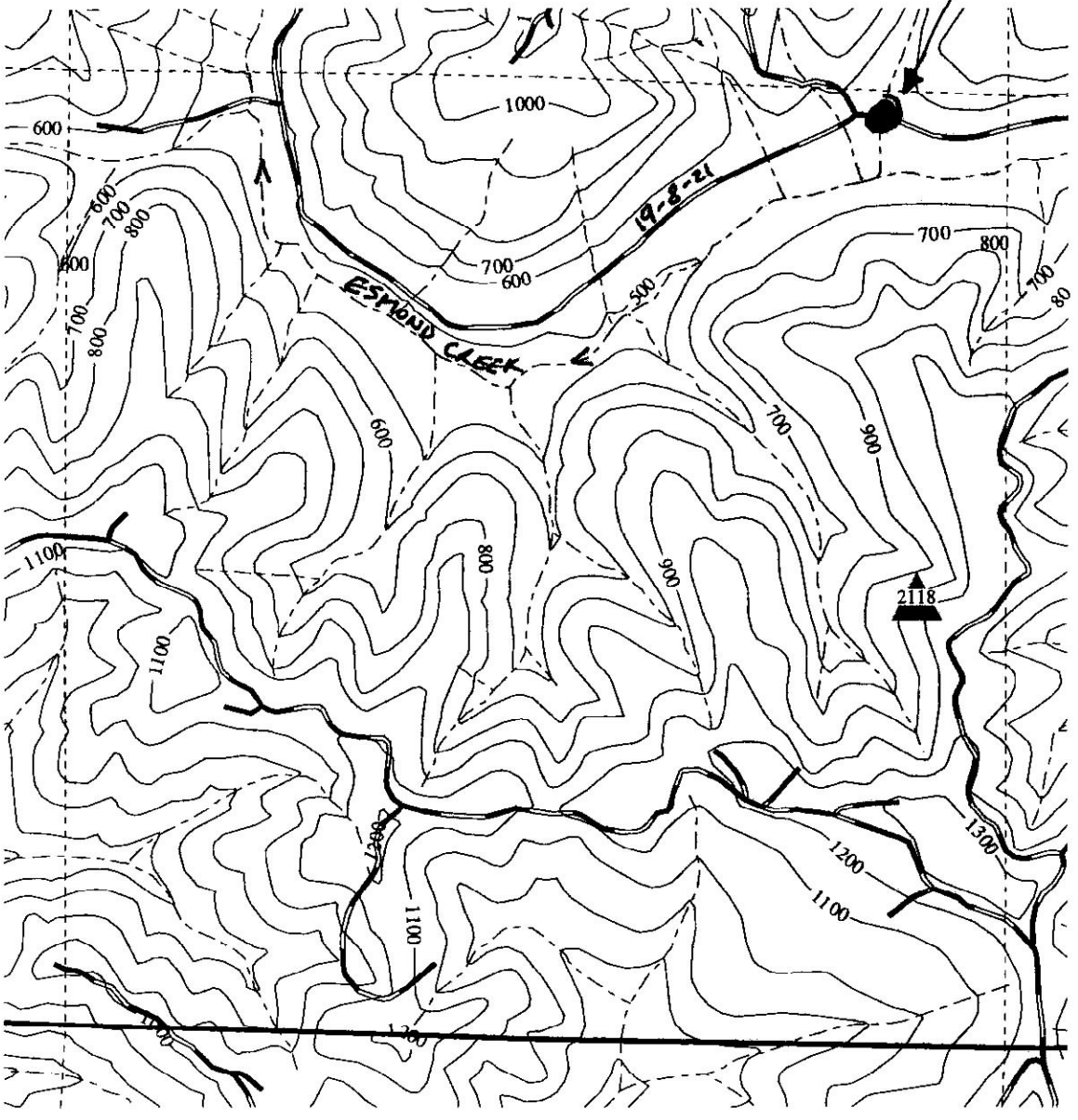
FY 2000 PROPOSED CULVERT REMOVALS/ REPLACEMENTS



= PROPOSED FY 2001 STREAM ENHANCEMENT LOCATIONS

Esmond Creek

T.19S, R.08W. Sec. 33

Contour Interval: 100 Ft

BLM
TAE (0)
Streams
Roads
Railroads
Owl Centers

O = CULVERT REPLACEMENT FY 2000

Scale 1:12000

1000 0 1000 2000

Feet

L.M.Poole

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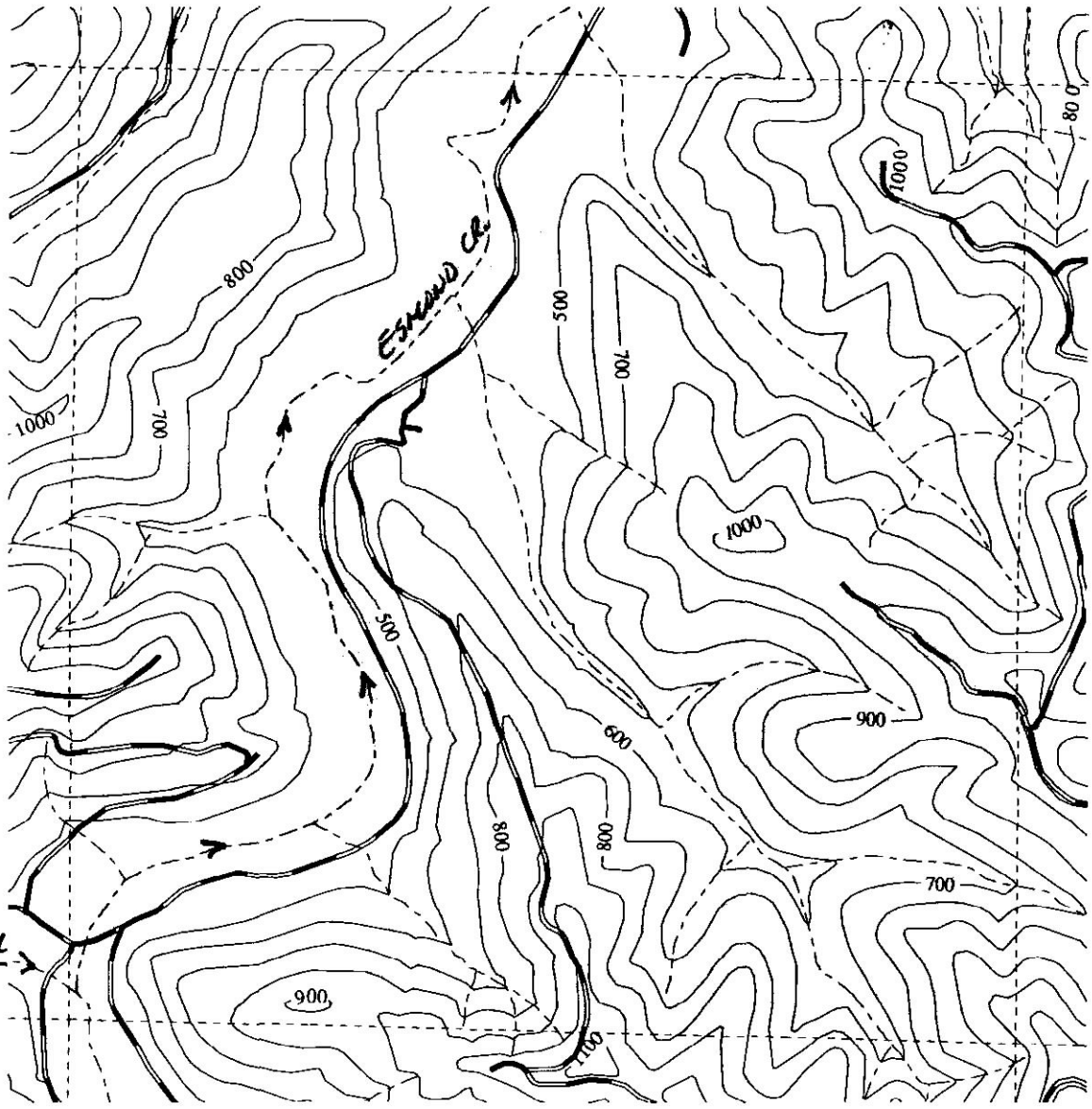

= PROPOSED FY 2001 STREAM ENHANCEMENT LOCATIONS

Esmond Creek

BLM
TAE (0)
Streams
Roads
Railroads

T.19S, R.08W. Sec. 21

Contour Interval: 100 Ft

Scale 1:12000

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Feet

L.M.Poole

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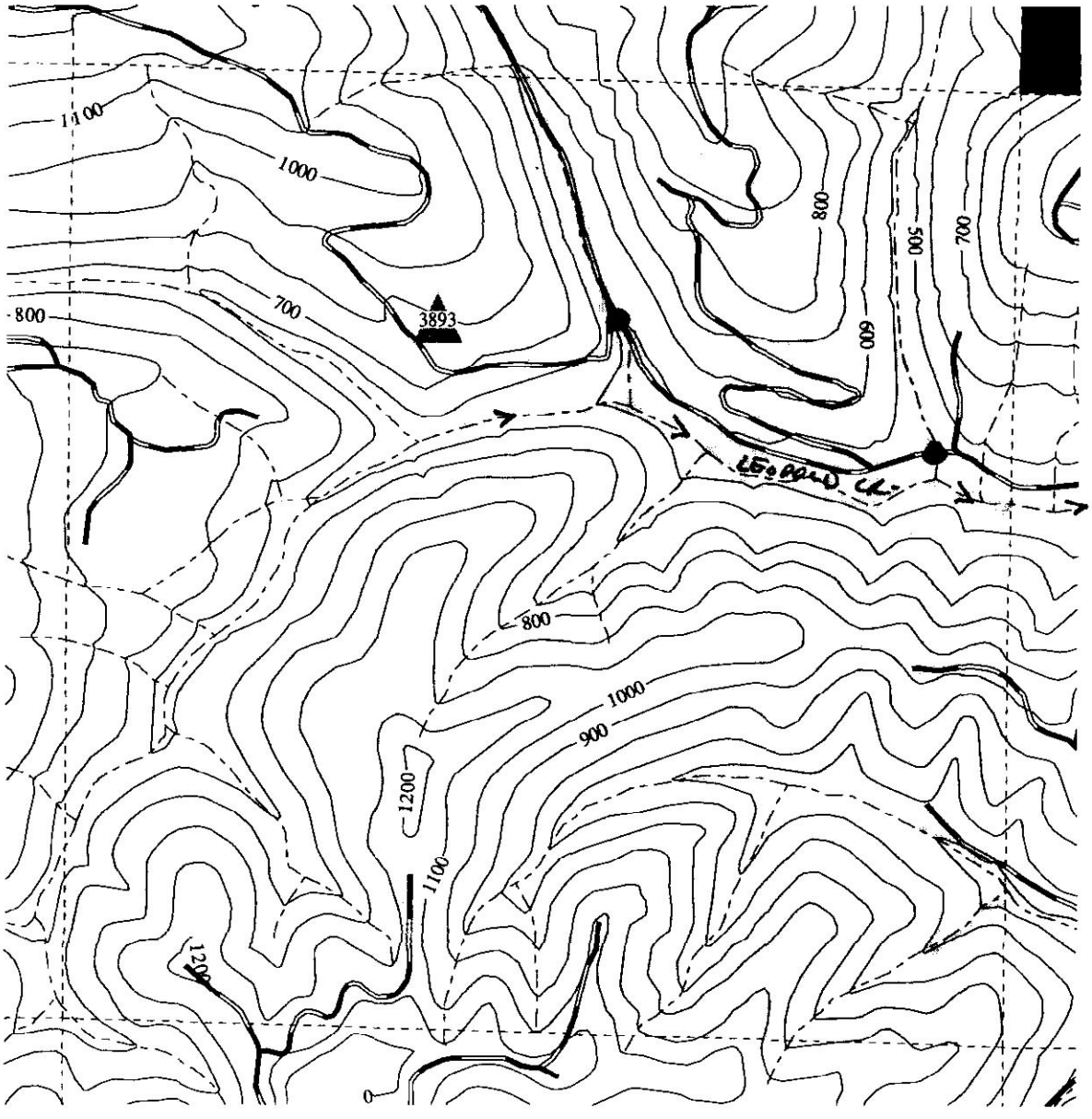

● = CULVERT SITES

= STREAM RESTORATION LOCATIONS (PROPOSED FY 2001)

Leopold Creek

BLM
TAE (1)
Streams
Roads
Railroads
Owl Centers

T.19S, R.08W. Sec. 17

Contour Interval: 100 Ft

Scale 1:12000

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Feet

L.M.Poole

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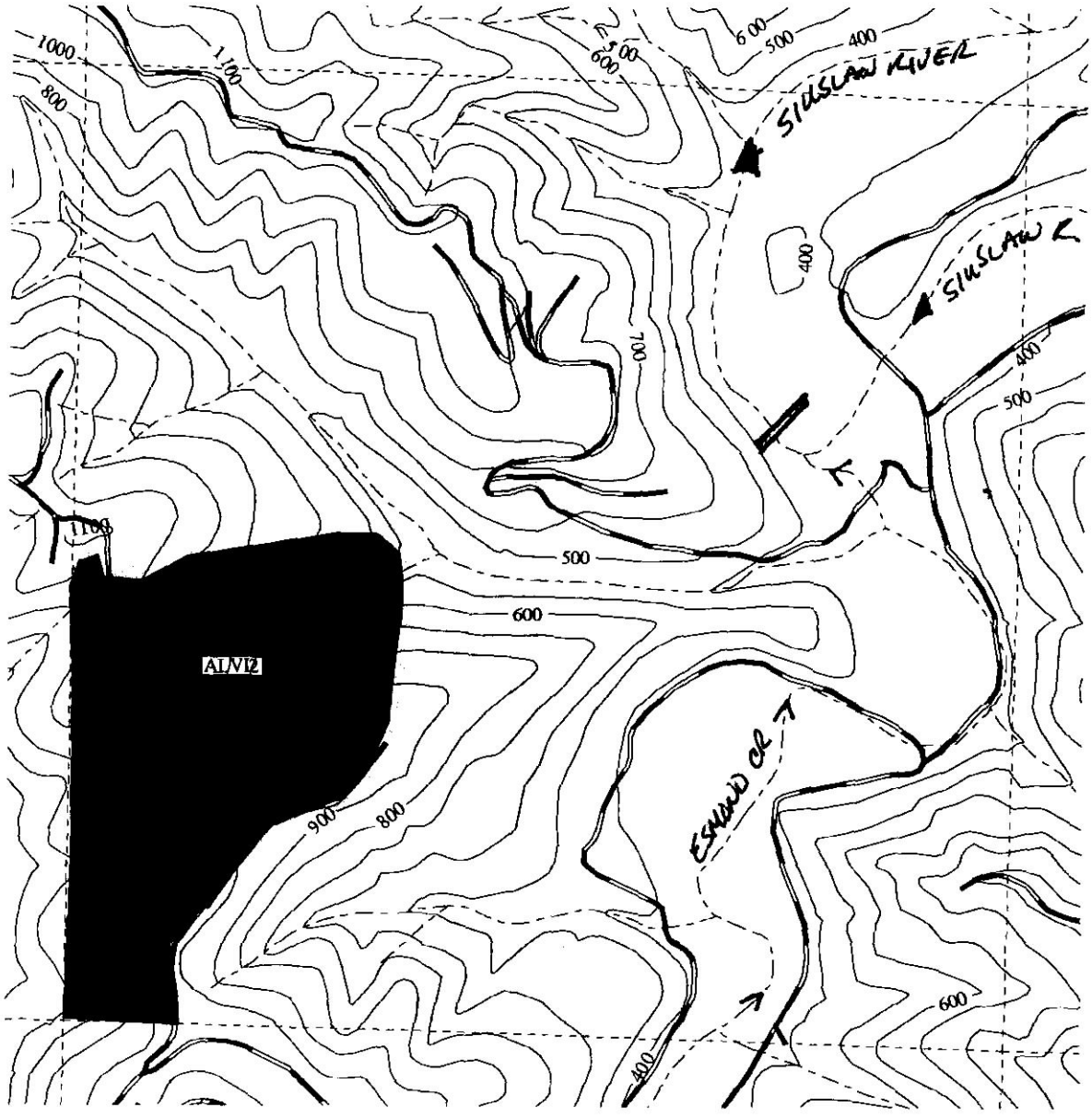

▭ = PROPOSED COOPERATIVE CASCADE INSTALLATION SITE (FY 2002)

Esmond/Siuslaw Confluence

BLM
TAE (1)
Streams
Roads
Railroads

T.19S, R.08W. Sec. 9

Contour Interval: 100 Ft

Scale 1:12000

1000 0 1000 2000

Feet

N

L.M.Poole

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